

We claim:

1. A system comprising:  
a conveyor operative to convey a metal container having a code stamped into a  
5 surface thereof, the code being unique to a path of manufacturing of the metal container;  
an inspection zone into which the metal container is conveyed;  
an illuminator operative to illuminate the metal container in the inspection zone;  
at least one imaging system operative to acquire information on defects and the  
code; and,  
10 at least one processor operative to process the information on the defects and the  
code to generate quality status information relating quality of the metal container to the  
path of manufacturing of the metal container.
2. The system as set forth in claim 1 wherein the code comprises an orientation  
15 fiducial and a unique pattern code.
3. The system as set forth in claim 1 wherein the code is stamped in a base region  
of the metal container.
- 20 4. The system as set forth in claim 3 wherein the code is contained within a central  
circular area in the dome sized so that it does not create ghost images on the sidewall  
from disturbances to reflections of the illumination source that is illuminating through  
the opening of the can.
- 25 5. The system as set forth in claim 4 wherein the code is totally contained within an  
axially centered region in the dome which is circumscribed by a circle approximately  
12mm in diameter.
6. The system as set forth in claim 1 wherein the imaging system is operative to  
30 inspect the defects at a first exposure level and to inspect the code at other exposure  
levels.

7. The system as set forth in claim 1 wherein the imaging system comprises at least one beam splitter, used with lenses and cameras to determine defects and the code by separating reflected light generated by the illuminator into at least two separate images.
- 5 8. The system as set forth in claim 1 wherein the imaging system uses spectral filtering to separate a received image into multiple video images.
9. The system as set forth in claim 1 wherein the imaging system comprises a high-speed camera and a lens to sequentially acquire a defect attribute image and a code  
10 image.
10. The system as set forth in claim 1 wherein the imaging system is comprised of more than one camera to image the defect uniquely from the code.
- 15 11. A method for inspecting metal containers, the method comprising:  
stamping a code in a surface of a metal container, the code being unique to a path  
of manufacturing of the metal container;  
conveying the metal container into an inspection zone;  
illuminating the metal container in the inspection zone;  
20 inspecting the metal container to determine defects in the container;  
inspecting the metal container to determine the code; and,  
accumulating quality status control information based on the defects and the  
code.
- 25 12. The method as set forth in claim 11 wherein the code comprises the fiducial and a 4-bit binary code.
13. The method as set forth in claim 11 wherein the stamping comprises using  
press-specific die sets.
- 30 14. The method as set forth in claim 11 wherein the forming comprises stamping the  
code in a base region of the metal container.

15. The method as set forth in claim 11 wherein inspecting the metal container for defects comprises inspecting at a first illumination exposure level and inspecting the metal container for the code comprises inspecting at a second illumination exposure level.
- 5 16. The method as set forth in claim 11 wherein the inspecting of the container for defects and the inspecting of the container for the code comprises using spectral filtering to separate a received image into multiple video images for subsequent processing.
- 10 17. The method as set forth in claim 11 wherein the inspecting to determine defects and the inspecting to determine the code comprises using a high-speed camera and a lens to sequentially acquire a defect attribute image and a code image.
- 15 18. The method as set forth in claim 11 wherein the inspecting to determine defects and the inspecting to determine the code comprise separating reflected light resulting from the illuminating into two separate channels using a beam splitter.
19. A system for inspecting metal containers, the system comprising:  
means for impressing a code into a surface of a metal container, the code being  
20 unique to a path of manufacturing of the metal container;  
means for conveying the metal container into an inspection zone;  
means for illuminating the metal container which is in the zone;  
means for inspecting the metal container to determine defects in the container and to determine the code; and,  
25 means for accumulating quality status control information based on the defects and the code.
20. The system as set forth in claim 19 wherein the means for illuminating the metal  
30 container is comprised of solid state illumination array(s) and illuminates the interior of the container.
21. The system as set forth in claim 19 wherein the code comprises the fiducial and a 4-bit binary code.

22. The system as set forth in claim 19 wherein the means for stamping comprises a press-specific die set.
- 5 23. The system as set forth in claim 19 wherein the code is stamped in a base of the metal container.
24. The system as set forth in claim 19 wherein the means for inspecting comprises means for inspecting at a first illumination exposure level to determine defects and a  
10 second illumination exposure level to determine the code.
25. The system as set forth in claim 19 wherein the means for inspecting comprises means for providing spectral filtering to separate a received image into multiple video  
15 images.
26. The system as set forth in claim 19 wherein the means for inspecting comprises a high-speed camera and a lens to sequentially acquire a defect attribute image and a code image.  
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27. The system as set forth in claim 19 wherein the means for inspecting comprises a beam splitter for separating reflected light into two separate images.